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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,988	08/28/2001	Michio Kadota	36856.541	7402

7590 04/19/2005  
Keating & Bennett LLP  
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EXAMINER

KIM, PAUL D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/940,988

Applicant(s)

KADOTA ET AL.

Examiner

Paul D Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |                                                                                                                                             |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/8/05</u> . | 6) <input type="checkbox"/> Other: _____                                                |

### DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 4/08/2005 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki et al. (JP 61-6919).

As per claim 1 Masaaki et al. teach a process of adjusting a frequency of an edge reflection type surface acoustic wave device comprising a process of determining a frequency characteristic of a first edge reflection type surface acoustic wave device (2) having a piezoelectric substrate (1) that is the first edge reflection type surface acoustic wave device cut from a piezoelectric wafer (1a), the edge reflection type surface acoustic wave device having a pair of edges of the piezoelectric substrate which

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define a predetermined distance therebetween (such as  $\lambda/2$ ) as shown in Fig. 5 and a process of cutting the piezoelectric wafer for additional edge reflection type surface acoustic wave device, which are subsequently cut from the piezoelectric wafer after the first edge reflection type surface acoustic wave device is cut (as shown in Fig. 2).

According to Fig. 9 of Masaaki et al., the frequency characteristic of the edge reflection type surface acoustic wave device is to be higher when a distance of at least one of a pair of positions is shorter than the predetermined distance, and the frequency characteristic of the edge reflection type surface acoustic wave device is to be lower when a distance of at least one of a pair of positions is longer than the predetermined distance. Even though Masaaki et al. do not teach the processes of cutting the additional edge reflection type surface acoustic wave device either longer or shorter from the piezoelectric wafer, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating the additional edge reflection type surface acoustic wave device of Masaaki et al. by longer or shorter than the predetermined distance from the piezoelectric wafer in order to obtain desired value of the frequency of the edge reflection type surface acoustic wave device.

As per claims 2 and 3 the positions at which the piezoelectric substrate can be cut in the piezoelectric substrate shifted from positions of the edges which define the predetermined distance in the frequency characteristic obtaining step by about  $\lambda/8$  or  $\lambda/16$  or less as shown in Fig. 9., where the  $\lambda$  is wavelength of a shear horizontal type surface wave to be excited in the edge reflection type surface acoustic wave device.

Even though Masaaki et al. do not teach cutting the additional edge reflection type surface acoustic wave device shifted from positions of the edges by about  $\lambda/8$  or  $\lambda/16$  or less, it would be also obvious to modify a process of fabricating the additional edge reflection type surface acoustic wave device to cut the additional edge reflection type surface acoustic wave device shifted from positions of the edges by about  $\lambda/8$  or  $\lambda/16$  or less in order to obtain desired value of the frequency of the edge reflection type surface acoustic wave device.

As per claim 4 the edge reflection type surface acoustic wave device of Masaaki et al. comprises a single electrode type interdigital transducer as shown in Fig. 2.

As per claim 5 the positions of the edges of the reflection type surface acoustic wave device as shown in Fig. 2 are located at approximate centers of electrodes.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki et al. in view of Michio et al. (JP 2000-059175).

Masaaki et al. teach all of the limitations as set forth above except a double electrode type interdigital transducer of the edge reflection type surface acoustic wave device. According to Figs. 1 and 4, Michio et al. teach a double electrode type interdigital transducer of the edge reflection type surface acoustic wave device for adjusting a frequency of an edge reflection type surface acoustic wave device (3,4). According to Figs. 4 and 5, the frequency characteristic of the edge reflection type surface acoustic wave device is to be higher (A to E) when a distance of at least one of a pair of positions is shorter (E to A) than the predetermined distance, and the frequency characteristic of the edge reflection type surface acoustic wave device is to

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be lower (E to A) when a distance of at least one of a pair of positions is longer (A to E) than the predetermined distance. It is well known of art to fabricate the shear horizontal type surface acoustic wave device having a single or double electrode type interdigital transducer in order to control effectively the unnecessary ripple generated on frequency characteristics and to offer the surface wave equipment with a moderate band of end-face reflective molds such as a resonator and a filter.

Also, the positions of the edges of the reflection type surface acoustic wave device as shown in Fig. 1 are located at approximate centers of electrodes (as per claim 7).

### ***Response to Amendment***

5. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection. Rejections are based on the newly cited reference.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 571-272-4565. The examiner can normally be reached on Monday-Friday between 8:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Paul D Kim', is positioned above the printed name and title.

Paul D Kim  
Examiner  
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